

Autoclave System

Transformation of MSW into Recyclable
Materials and Cellulose Fibres

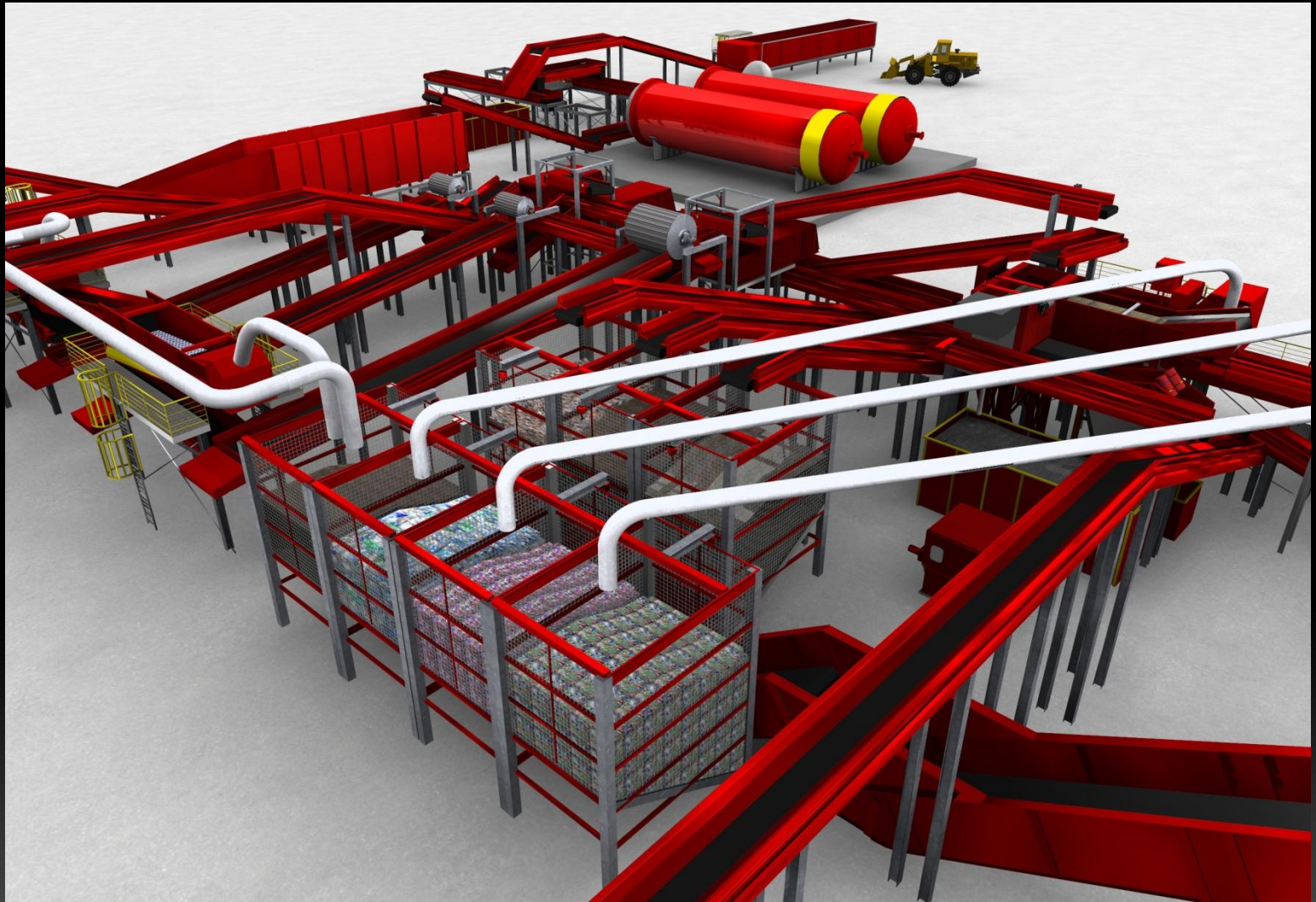


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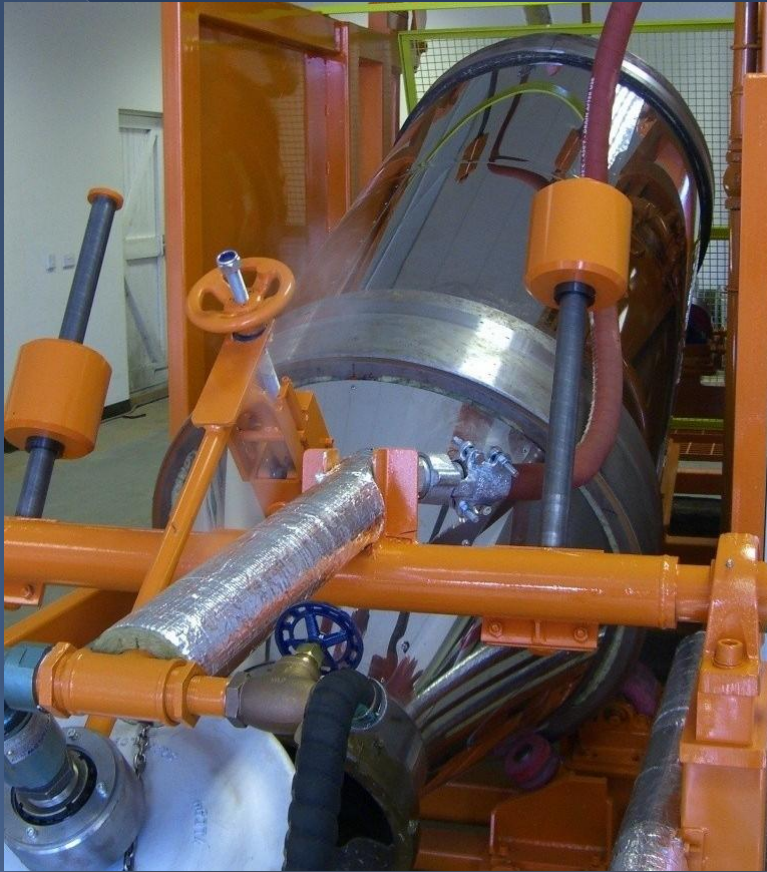
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FISSORE Agency
Shredding and Recycling Machinaries

SEPARATION PLANT



Scheme of an automatic separation plant for municipal solid wastes MSW, made up of 2 parallel 15 tons autoclaves each one.

Automatic Wastes Separation



- Municipal Solid Wastes are automatically and entirely broken up into recyclable materials and (*from putrescent materials*) cellulose fibres.
 - System is modular, starting from minimum 2 Autoclaves
 - Every autoclave has a capacity of 3,7 o 15 tons of wastes for each cycle, which lasts 144 minuts (up to a maximum od 10 daily cycles each one)
 - The recyclable materials extracted (metals, plastics, glass, ...) are then cleaned and sterelyzed, acquiring a strong commercial value and only more to separate from the flock (*thing that happens in full authomatism*)
 - The organic materials are reduced into cellulose fibres, so producing a new inert material which can be used for energy production or as raw material : this is « Flock »
 - At the end of the selection less than 10% of wastes (*that is inert mud*) is discharged, in a context in which the landfills are always more rare and expensive, further than not accepted from the people!
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- The efficacy of the separation maybe to counsel the NOT differentiated municipal solid wastes collection, but really the results obtained from the differentiated collection are better, at least in reference to the biogas obtained to end of workmanship!
 - A complete installation is exstremely profitable (optimal income, minimal fonctionning costs, complete energetic autonomy) and rapidly payble off (2 years average)
 - Emissions are far inferior in comparison to the imposed limit by the current european legislations: practically inexistent!

Tractable waste

- ❑ Differentiated Municipal Solid Wastes MSW
- ❑ Undifferentiated Municipal Solid Wastes
- ❑ Organic Wastes from supermarkets
- ❑ Organic Wastes from food industry
- ❑ Restaurants and shops wastes
- ❑ Dry animal dejections and carcasses
- ❑ Contaminated organic materials
- ❑ Green wastes from gardening



Aluminium tins
(before and after treatment)



1,5 lt Plastic bottles
(volume reduced of 70%)



“Flock”
Produced from organic materials

Detailed Functioning



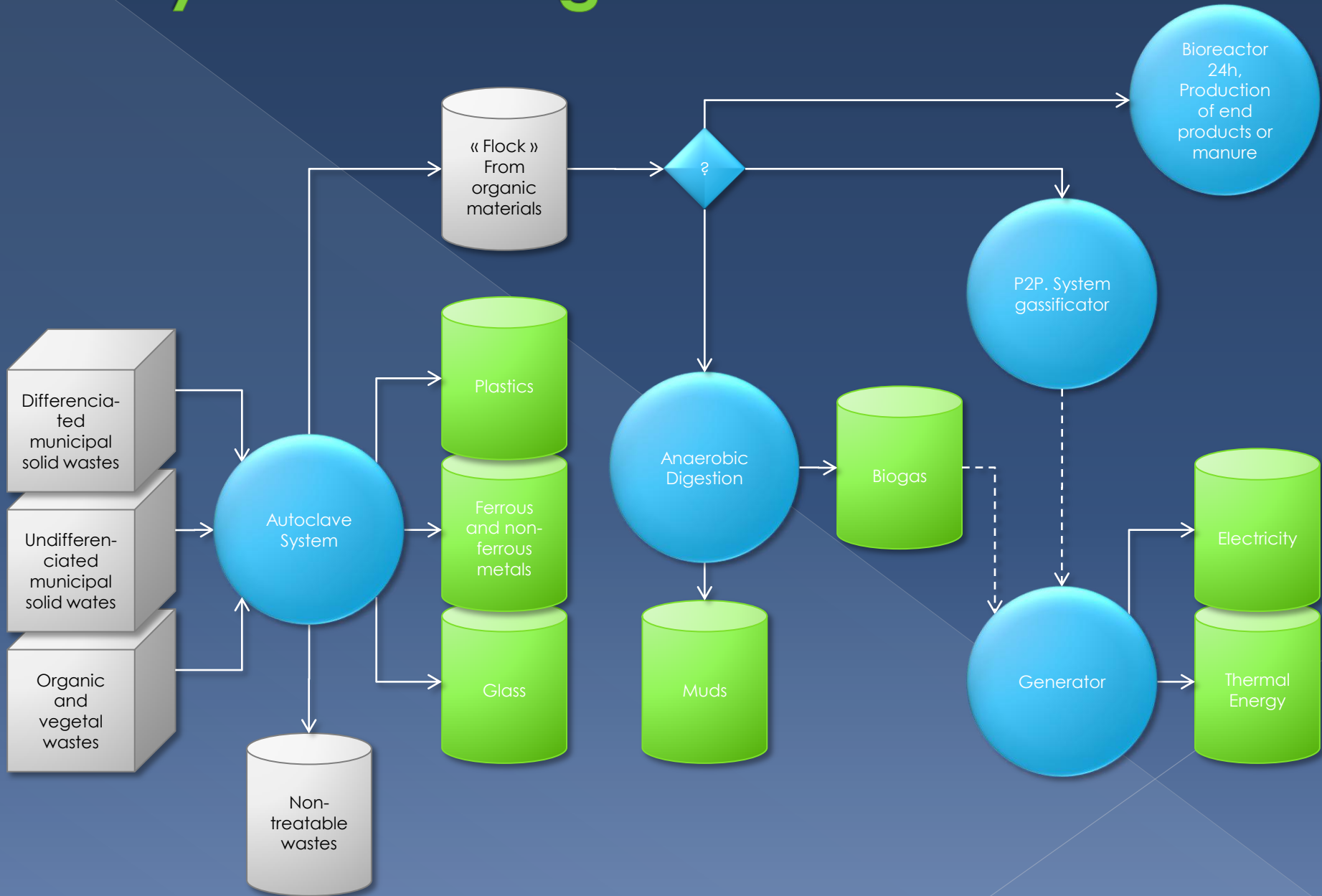
- Wastes are shredded and loaded on the first free autoclave through a withdrawable belt
 - Once the autoclave is full (with 3,7 or 15 tons), the load door is closed and the drum starts a continual rotative movement
 - Empty is so created inside the autoclave, then some steam is introduced at a temperature of 160°C up to the reach of a pressure of 5,2 bar, which is maintained for the whole process
 - At the end of the 144 minutes process, the autoclave is depressurized and almost one half of the steam is recovered for using it again in the next cycle
 - The load door is finally opened and the wastes, cleaned and sterilized, are poured onto the automatic selection platform
 - The different recyclable materials are separated (inclined and with holes conveyor for liquids and flock, magnet for ferrous elements, induction running for aluminum, infrared for recognition of the different types of plastics through infrared rays, ...) and distributed into the right container
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- The organic materials duly transformed in «Flock» are totally recovered, to produce energy or as first-second material (as after better explained)
 - The 2x3,7 tons(25.000 t per year) and 2x15 tons (100.000 t per year) systems are suitable respectively for populations of 50.000 and 190-200.000 inhabitants (according to the european average of 527 annual kgs of wastes produced by each person)
 - A 2x15 tons separation unit needs a covered space of abt. 4.000m² (without considering the eventual necessary space for Flock Anaerobic Digestion plant)
 - Due to the modular conception of the system, it is possible to review its characteristics in order to improve its capacities and respond to an increasing demand: increasing with your Firm modularity!

“Flock” usage








- «Flock» generally represents 40/45% of the MSW and arrive to 60-65% with paper and cardboard when UNdifferentiated collection.
- The most ecologic and profitable solution is to transform it into biogas through an anaerobic digestion process for at least 15 days, in order to use this biogas inside of a cogenerator to produce electricity and thermal energy
- It can also be burnt directly (producing a less quantity of emissions in comparison to what established by the european legislations), or being previously gasified for a better redditivity (discouraged solution due to high costs)
- Thanks to our exclusive P2P system, it is possible to obtain 30/35% of methan and 65/70% of carbon coke (see presentation « P2P System »)
- When you are sure abt. its purity, you can use «Flock» into our Bioreactor 24h, to produce some natural fertilizer in granules (see presentation « Bioreactor 24h ») It can be transformed into paper, cardboard, multilayer panels for furniture, thermal or soundproof panels, antisismical panels, as well as industrial fuel
- Biodegradable and reach, it can also be used as fertilizer (after adequate chemical analyses)
- The possible uses of « Flock », referring to their respective redditivities, it depends on the organic materials treated and from the final use foreseen

Synthesis diagram



Fissore Agency is distributor for:

	<ul style="list-style-type: none"> ➤ Automatic separation of MSW differentiated or not by Autoclave (with AeroThermal UK) ➤ Bioreactors for 24 hours ready natural fertilizer (with ORGAplus-NL) ➤ Transformation of Plastics into Petrole (P2P) (with Oil Field Tekniks / STEPS-INDIA) ➤ FISSORE Agency is co-founder and Partner of VULCANES, and TRENARY Group Partner
	<ul style="list-style-type: none"> ➤ Dutch manufacturer of machines for the recycling industry since 1950 ➤ World Leader for shredders, punches, compactators, roll-cutters, bale presses, conveyors, selection installations, ... for Industrial and domestic wastes treatment
	<ul style="list-style-type: none"> ➤ World Leader for screening technology, number one in the United States ➤ Pioneer in the field of conceiving, developing and supplying of innovative, reliable and convenient selecting and recycling installations. ➤ It is part of the Bollegraaf Recycling Machinery Group since July 2001
	<ul style="list-style-type: none"> ➤ Shred and Sanitization Technologies for Medical wastes
	<ul style="list-style-type: none"> ➤ Shredders for all the materials

Do not hesitate visiting our [web site](#) for every additional information on our technologies...



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